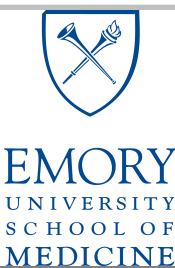




Resolution of Oculomotor Nerve Palsy Secondary to Ruptured Posterior Communicating Artery Aneurysms: Comparison Between Clipping and Coiling

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Introduction

Posterior communicating artery aneurysm (PCoA) induced oculomotor nerve palsy (ONP) is a well-established entity. Previous studies have attempted to address the effectiveness of clip ligation or coil embolization on the rate and completeness of ONP resolution, but have been limited by small sample sizes.

Methods

In this multi-centered study 55 patients with ruptured PCoA and 29 unruptured with acute ONP from January 1991 to October 2013 were reviewed. Included patients had angiographically confirmed PCoA following acute subarachnoid hemorrhage and or found after discovery of their ONP. Rate of resolution of ONP was determined from treatment date to last known follow-up and was defined as complete vs. partial or no resolution. Resolution data on 83 ruptured and 72 unruptured patients was extracted from the literature and combined to increase sample size. Outcomes and treatment groups were directly compared. A total of 322 patients were available for review.

Results

Group characteristics			
Group Characteristics			
Characteristic	Clipped (N = 205)	Coiled (N = 194)	P-value
PCoA Size Mean ± SD	7.7 mm ± 2.7	7.7 mm ± 3.4	0.989
Time from symptom onset to treatment Median (IQR)	4.5 days (2 -10)	6.0 days (3-14)	0.499
ONP at Presentation N (%)			
Complete	123 (60%)	100 (51.6%)	0.089
Partial	82 (40%)	94 (48.5%)	
PCoA Status			
Ruptured	55 (50.5%)	75 (62.0%)	0.078
Unruptured	54 (49.5%)	46 (38.0%)	

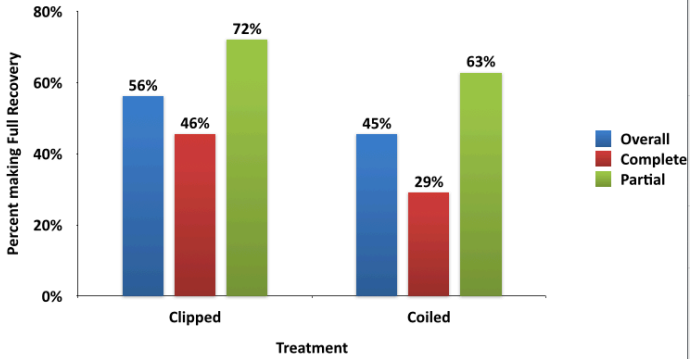
Clipped vs. Coiled

Group	Clipped	Coiled	OR (95% CI)	P-value
Overall N = 399	56.1%	45.5%	1.54 (1.04 – 2.28)	0.032
Complete N = 223	45.5%	29.0%	2.05 (1.17 – 3.58)	0.012
Partial N = 176	75.6%	58.5%	2.20 (1.17 – 4.13)	0.014
Ruptured [†] N = 130	70.9%	49.7%	2.50 (1.20 – 5.23)	0.014
Unruptured [†] N = 100	59.3%	45.7%	1.73 (0.78 – 3.83)	0.174

[†] Missing type for N = 169

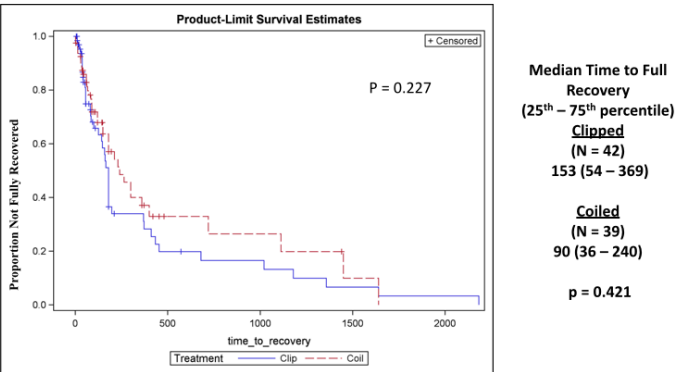
% of patients making full recovery based on presenting ONP and treatment type

Clipped vs. Coiled (Overall)



% of patients making full recovery based on presenting ONP and treatment type

Clipped vs. Coiled Time to Full Recovery (Days)



Conclusions

In our series of patients with ONP secondary to PCoA, patients undergoing clipping were more likely to experience complete resolution vs. coiling. There was no difference between the treatment groups with regard to aneurysm size, time from ONP onset to treatment, and rate of complete resolution. Larger multi-centered studies are needed to assess these treatments for ONP resolution with greater precision.

Learning Objectives

- 1) Understand the difference that coil embolization or clip ligation has on the resolution of third nerve palsy with acute posterior communicating artery aneurysms
- 2) Know that this is a rare occurrence that requires patients from multiple years and hospitals to accurately assess either treatment